AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1 – 15. (Canceled)

16. (Withdrawn) A culture medium component identified by the method of Claim 1.

17. (Withdrawn) A culture medium comprising the culture medium component of Claim 16.

18 – 30. (Canceled)

31. (Withdrawn) A method of defining a test compound library, comprising the step of representing each of a plurality of groups of compound isomers from within a compound space as a respective candidate compound.

32. (Withdrawn) The method of Claim 31, wherein said representing step is followed by the steps of:

selecting less than all of the candidate compounds using a space-filling technique; and

expanding the less than all of the candidate compounds determined in said selecting step into their constituent compound isomers.

33. (Withdrawn) The method of Claim 32, further comprising the step of selecting at least one constituent compound isomer for each of the candidate compounds.

34. (Withdrawn) The method of Claim 31, wherein the compound space and test compound library consist of compounds selected from the group consisting of peptides, polynucleotides, nucleic acids, carbohydrates, free fatty acids, and lipids.

35. (Withdrawn) The method of Claim 31, wherein the compound space is a peptide space and the test compound library is a test peptide library.

36. (Withdrawn) A test compound library wherein each of a plurality of compound isomers from within a compound space is represented as a respective candidate compound.

37. (Withdrawn) The test compound library of Claim 36, wherein the compound space is a peptide space and the test compound library is a test peptide library.

38. (Withdrawn) A test compound library formed by the method of Claim 31.

39. (Withdrawn) A test compound library formed by the method of Claim 32.

40. (Withdrawn) The test compound library of Claim 39, wherein the compound space is a peptide space and the test compound library is a test peptide library.

41 – 54. (Canceled)

55. (Withdrawn) A culture medium component identified by the method of Claim 41.

56. (Withdrawn) A culture medium comprising the culture medium component of Claim 55.

57 – 58. (Canceled)

59. (Withdrawn) A method of predicting indicia of a property of a peptide, comprising the steps of:

measuring indicia of an activity of a plurality of test peptides from a test peptide library;

determining a relationship between the measured indicia of the activity and at least one whole molecule parameter of the plurality of test peptides;

predicting the indicia of the activity of a peptide not within the plurality of test peptides based on the relationship.

60. (Withdrawn) The method of Claim 59, wherein the first plurality of test peptides from the test peptide library is selected using a space-filling technique.

61. (Withdrawn) The method of Claim 59, wherein the at least one whole molecule parameter comprises a parameter selected from the group consisting of total

charge, molecular weight, isoelectric point, total dipole moment, isotropic surface area, electronic charge index, and hydrophobicity.

62. (Withdrawn) The method of Claim 59, wherein at least two whole molecule parameters of the plurality of test peptides are selected from the group consisting of total charge, molecular weight, isoelectric point, total dipole moment, isotropic surface area, electronic charge index, and hydrophobicity.

63. (Withdrawn) The method of Claim 59, wherein the at least one whole molecule parameter comprises hydrophobicity, molecular weight, total dipole moment, and total charge.

64. (Withdrawn) The method of Claim 59, wherein the at least one whole molecule parameter comprises molecular weight and at least one additional parameter selected from the group consisting of total charge, isoelectric point, total dipole moment, isotropic surface area, electronic charge index, and hydrophobicity.

65. (Withdrawn) The method of Claim 59, wherein the activity is binding to a receptor.

66. (Withdrawn) The method of Claim 59, wherein the activity is enhancement or inducement of a biological activity in a cell.

67. (Withdrawn) The method of Claim 59, wherein the activity is inhibition or prevention of a biological activity in a cell.

68. (Withdrawn) The method of Claim 66 or Claim 67, wherein the cell is a cell cultured in vitro.

69. (Withdrawn) The method of Claim 68, wherein said step of measuring indicia of the property comprises:

forming a plurality of culture media that each contains a respective test peptide from the plurality thereof; and

adding each of the plurality of culture media to a respective cell culture to form a plurality of cell cultures each containing a respective culture medium containing a respective test compound.

70. (Withdrawn) The method of Claim 59, wherein the activity is enhancement or inhibition of a receptor.

71. (Withdrawn) The method of Claim 59, wherein the activity is enhancement or inducement of activation of a receptor.

72. (Withdrawn) The method of Claim 59, wherein the test peptide library consists of peptides having a length in a range from about four amino acids to about twenty amino acids.

73. (Withdrawn) The method of Claim 59, wherein the test peptide library consists of peptides having a length in a range from about four amino acids to about ten amino acids.

74 – 112. (Canceled)

113. (Withdrawn) A culture medium component identified by the method of Claim 96.

114. (Withdrawn) A culture medium comprising the culture medium component of Claim 113.

115. (Withdrawn) The culture medium of Claim 114, wherein the culture medium comprises a concentration of an undefined protein component in a range from about 0.1% (w/v) to about 2.5%(w/v).

116. (Withdrawn) The culture medium of Claim 115, wherein the undefined protein component is selected from the group consisting of hydrolysates, digests, extracts and infusions.

117. (Withdrawn) The culture medium of Claim 114, wherein the culture medium comprises a concentration of serum in a range from about 0.05% (v/v) to about 30%(v/v).

118. (Withdrawn) The culture medium of Claim 114, wherein the culture medium comprises insulin.

119. (Canceled)

120. (Previously Presented) The apparatus of claim 128, wherein said means for deriving a quantitative relationship comprises means for deriving a quantitative relationship in the form of $\hat{y}_i=f(x_{ij})$, where x_{ij} denotes said at least one parameter, i ranges from 1 to n where n represents the number of first culture media in the plurality thereof, j ranges from 1 to d where d represents the number of parameters, and $\hat{y}_i$ represents an estimate of the measured indicia of the property of the plurality of first culture media.

121. (Previously Presented) The apparatus of claim 120, wherein said means for identifying a candidate library comprises means for determining from $\hat{y}_i=f(x_{ij})$, an estimated indicia of the property of a plurality of candidate culture media which each contains a respective test compound.

122. (Previously Presented) The apparatus of claim 128, wherein said means for deriving a quantitative relationship comprises:

means for determining a distance function d(x1, x2) between a first value of a parameter, x1, of a first test compound and a second value of a parameter, x2, of a second test compound not within the plurality of first test compounds; and

means for estimating an indicia of the property of a culture medium containing the second test compound as the indicia of the property of the culture medium containing the first test compound if $d(x_1, x_2) \leq d_{cutoff}$, where d_{cutoff} is a cutoff distance for the first test compound.

123. (Cancelled)

124. (Previously Presented) The computer program product of claim 129, wherein said step of deriving a quantitative relationship comprises deriving a quantitative relationship in the form of $\hat{y}_i=f(x_{ij})$, where x_{ij} denotes the at least one parameter, i ranges from 1 to n where n represents the number of first culture media in the plurality thereof, j ranges from 1 to d where d represents the number of parameters, and $\hat{y}_i$ represents an estimate of the measured indicia of the property of the plurality of first culture media.

125. (Previously Presented) The computer program product of claim 124, wherein said step of identifying a candidate library further comprises determining from $\hat{y}_i=f(x_{ij})$, an estimated indicia of the property of a plurality of candidate culture media which each contains a respective test compound.

126. (Previously Presented) The computer program product of claim 125, wherein said step of deriving a quantitative relationship further comprises:

determining a distance function d(x1, x2) between a first value of a parameter, x1, of a first test compound and a second value of a parameter, x2, of a second test compound not within the plurality of first test compounds; and

estimating indicia of the property of a culture medium containing the second test compound as the indicia of the property of the culture medium containing the first test

compound if $d(x_1, x_2) \leq d_{cutoff}$, where d_{cutoff} is a cutoff distance for the first test compound.

127. (Cancelled)

128. (Previously Presented) An apparatus for identifying a culture medium component, comprising:

means for identifying a predetermined set of test compounds;

means for parameterizing said predetermined set of test compounds by determining at least one parameter for each test compound in said predetermined set of test compounds;

means for performing a space-filling design of the parameterized predetermined set of test compounds to identify a plurality of first test compounds, wherein said plurality of first test compounds is a subset of said predetermined set of test compounds;

means for constructing a first test library containing a plurality of first culture media, each said first culture media containing a respective first test compound identified using said space-filling design;

means for deriving a quantitative relationship between a measured indicia of a property of said plurality of first culture media and at least one parameter of said plurality of first test compounds;

means for identifying a candidate library containing a plurality of candidate culture media having an estimated indicia that satisfies a test requirement, wherein each said candidate culture medium contains a respective test compound from said predetermined set of test compounds that is not in said first test library, and wherein said estimated indicia is calculated using said derived quantitative relationship; and

means for identifying a second test library containing candidate culture media having a measured indicia that satisfies said test requirement.

129. (Previously Presented) A computer program product readable by a machine and tangibly embodying a program of instructions executable by the machine to perform the method steps of:

identifying a predetermined set of test compounds;

parameterizing the predetermined set of test compounds by determining at least one parameter for each test compound in the predetermined set of test compounds;

performing a space-filling design of the parameterized predetermined set of test compounds to identify a plurality of first test compounds, wherein the plurality of first test compounds is a subset of the predetermined set of test compounds;

constructing a first test library containing a plurality of first culture media, wherein each of the first culture media contains a respective first test compound;

deriving a quantitative relationship between a measured indicia of a property of the plurality of first culture media and at least one parameter of the plurality of first test compounds;

identifying a candidate library containing a plurality of candidate culture media having an estimated indicia that satisfies a test requirement, wherein each candidate culture medium contains a respective test compound from the predetermined set of test compounds that is not in the first test library, and wherein the estimated indicia is calculated using the derived quantitative relationship; and

identifying a second test library containing candidate culture media having a measured indicia that satisfies the test requirement.